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CLAIMS

1. A method for changing the unwinding direction of wound laps (W, W1) supplied in a temporally successive manner by a delivery station (1) in order to form a group of wound laps (WG) in which the face sides of adjacent wound laps (W) are provided with the same distance (a) and the longitudinal axes (LA) of the wound laps (W) are disposed in one line, characterized in that the wound laps supplied by the delivery station (1) are rotated in a plane in which the longitudinal axis (LA) of the wound lap (W) is disposed and the wound laps are thereafter displaced step-by-step in the direction of their longitudinal axes (LA).
2. The method as claimed in claim 1, characterized in that the wound laps (W) supplied by the delivery station (1) are displaced stepwise transversally to their direction of delivery by means of a receiver (41, 42) of a rotating apparatus (30), by means of which they are rotated by 180° in a plane in which the longitudinal axis (LA) of the wound lap (W) is disposed and the wound laps are thereafter displaced from the zone of the receiver (42) in the direction of their longitudinal axis (LA).
3. The method as claimed in claim 2, characterized in that the wound laps (W1) are moved before and after the rotating process transversally to their longitudinal axes (LA).
4. The method as claimed in claim 3, characterized in that the wound laps (W1) are lifted off for the rotating process by a conveying device (14) through the rotating apparatus (30) and are placed on the conveying device (14) again after the rotating process.
5. The apparatus for rotating a wound lap (W) in a plane and transversally to its longitudinal axis (LA), with the apparatus (30) being provided with a rotating shaft (DA), characterized in that means (12) are provided in order to intermittently displace transversally to the direction of delivery the wound laps (W) which ar

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supplied in intervals by a delivery station (1) in order to form a group (WG) of wound laps (W) in which the face sides of adjacent wound laps have the same distance (a) and the longitudinal axes (LA) of the wound laps are disposed in one line and the apparatus (30) for rotating the wound laps (W) projects at least partly into the zone of displacement of the wound laps and is provided with at least two receiving means (41, 42) facing in the opposite direction.

6. The apparatus as claimed in claim 5, characterized in that the means (12) for the intermittent displacement of the wound laps (W) is provided with a controlled driven conveyor belt (14).
7. The apparatus as claimed in one of the claims 5 to 6, characterized in that the rotating apparatus (30) is provided with a lifting device (33, 34).
8. The apparatus as claimed in one of the claims 5 to 7, characterized in that the smallest distance (b) between the rotating shaft (DA) of the apparatus (30) and the face side of the wound lap (W1) which is fully pushed onto the receiving means (41) corresponds to half the distance (a) between the face side of adjacent wound laps within the group (WG).
9. The apparatus as claimed in one of the claims 5 to 8, characterized in that the rotating apparatus (30) rotates the wound lap (W) by 180° and moves it about a winding division, as seen in the direction of displacement of the wound laps, corresponding to the predetermined distances of adjacent wound laps within the group.
10. The apparatus as claimed in one of the claims 5 to 9, characterized in that the receiving means (41, 42) are provided at least partly with a non-slip layer.
11. The apparatus for rotating a wound lap (W) in a plane transversally to its longitudinal axis (LA), with a rotatably held receiver being provided on which the wound lap which is supplied by a delivery station is discharged, characterized in

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that the approximately vertically aligned rotating shaft (52, 58) of the receiver (50) is disposed outside of the bearing surface of the wound lap (W) in order to transfer the wound lap to a delivery position (US) from which it is supplied by transfer means (56) to a downstream means for producing a group (WG) of wound laps in which the face sides of adjacent wound laps have the same distance (a) and whose longitudinal axes (LA) are disposed in one line.

12. The apparatus as claimed in claim 11, characterized in that the rotating shaft (52, 58) of the receiver (50) is arranged, as seen in the delivery direction of the wound lap (W) from the delivery station, to the right or left outside of the zone which is disposed between the vertical planes in which the face sides of the wound lap are disposed.

13. The method as claimed in claim 1, characterized in that the wound laps (W) supplied by the delivery station (1) are received by a rotating apparatus (60) and are transferred in the horizontal direction to a downstream longitudinal conveyor (12), with the wound laps (W) being rotated by an angle in a plane during their horizontal movement or directly before their delivery to the longitudinal conveyor (12) in which the longitudinal axis of the respective wound lap is disposed.

14. The method as claimed in claim 13, characterized in that the wound laps (W) are moved in the vertical direction before or after the rotating process.

15. The method as claimed in one of the claims 13 to 14, characterized in that the wound laps (W) are rotated by approx. 90°.

16. The apparatus for rotating a wound lap (W) in a horizontal plane transversally to its longitudinal axis (LA), with the apparatus (60) being provided with a vertically aligned rotating shaft (62), characterized in that the apparatus (60) is held in a horizontally displaceable manner in a guide element (70, 72) and is provided with at least one receiving means (63) for the wound lap delivered in intervals by a delivery station (1), with the receiving means (63) being fixedly connected with

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the rotating shaft (62) and means (14, 77) being provided in order to receive the wound laps (W) which are received and rotated by the apparatus (60) and to intermittently displace the same in order to form a group (WG) of wound laps, with the means (14, 77) being provided with a controlled drive (75) in order to form a group of wound laps (WG) from the wound laps (W) supplied by the apparatus (60) in which the face sides of adjacent wound laps have the same distance (a) and the longitudinal axes (LA) of the wound laps are disposed in one line.

17. The apparatus as claimed in claim 16, characterized in that the apparatus rotates the wound lap by approximately 90° and that the longitudinal direction of the means (12) for forming the group of wound laps (WG) is aligned approximately parallel to the direction of delivery of the delivery station (1).

18. The apparatus as claimed in one of the claims 16 to 17, characterized in that the apparatus (60) is provided with at least four receiving means (63, 63a, 63b, 63c) which project outwardly from the rotating shaft (62), with at least two each of the receiving means (63, 63b / 63a, 63c) being disposed in one line.

19. The apparatus as claimed in one of the claims 16 to 18, characterized in that the receiving means are provided with a non-slip layer.



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